

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Glenn Algie et al.

Serial No. 10/797,271

Filed: 03/10/2004

For: **DYNAMIC CONFIGURATION FOR A MODULAR INTERCONNECT**

Examiner: Ahn Ngoc M. Nyugen

Art Unit: 2416

Mail Stop Appeal Brief – Patents

Commissioner for Patents

PO Box 1450

Alexandria, VA 22313-1450

Sir:

An **APPEAL BRIEF** is filed herewith. Appellant encloses a payment in the amount of \$540.00 as required by 37 C.F.R. § 41.20(b)(2). Appellant also encloses a payment of \$130.00 for a one-month Extension of Time and requests that this be considered a petition therefor. If any additional fees are required in association with this appeal brief, the Director is hereby authorized to charge them to Deposit Account No. 50-1732, and consider this a petition therefor.

APPEAL BRIEF

(1) REAL PARTY IN INTEREST

The real party in interest is Ciena Corporation, 1201 Winterson Road,
Linthicum, Maryland 21090.

(2) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences to the best of Appellant's knowledge.

(3) STATUS OF CLAIMS

Claims 1-20 were rejected with the rejection made final on September 28, 2009.

Claims 1-20 are pending and are the subject of this appeal.

(4) STATUS OF AMENDMENTS

All amendments have been entered to the best of Appellant's knowledge.

No amendments have been made after the final rejection mailed September 28, 2009.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

In the following summary, Appellant has noted where in the Specification certain subject matter exists. Appellant wishes to point out that these citations are for demonstrative purposes only and that the Specification may include additional discussion of the various elements, citations to which are not pointed out below. Thus, the noted citations are in no way intended to limit the scope of the pending claims.

Independent claim 1 recites an adaptive interconnect for providing an interface between multiple modules and a control system comprising:

- a) a control system interface (such as the interface between control system 18 and adaptive interconnect logic 22, Figures 1 and 2);
- b) a plurality of module interfaces (such as module interfaces 24, Figures 1 and 2);
and
- c) adaptive interconnect logic (such as adaptive interconnect logic 22, Figures 1 and 2) associated with the control system interface and the plurality of module interfaces and adapted to:
 - i) negotiate with a module (such as any of modules 26, Figures 1 and 2) over a control path via one of the plurality of module interfaces to identify an interface personality for the module (Specification, paragraphs 0004, 0013, 0015, 0016, and 0018; see also Figure 3, steps 102 and 104);
 - ii) select the interface personality based on negotiations with the module (Specification, paragraphs 0004 and 0017; see also Figure 3, step 114); and
 - iii) apply the interface personality to the one of the plurality of module interfaces, such that the applied interface personality provides an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins (such as power pins 34, control pins 36, and or datapath pins 38, Figure 2)

(Specification, paragraphs 0004, 0013, 0015, 0017, 0018, and 0020; see also Figure 3, step 116).

Independent claim 7 recites a method for providing an interface between multiple modules (such as modules 26, Figures 1 and 2) and a control system (such as control system 18, Figures 1 and 2) comprising:

- a) negotiating with a module (such as any of modules 26, Figures 1 and 2) over a control path via one of a plurality of module interfaces (such as module interfaces 24, Figures 1 and 2) to identify an interface personality for the module (Specification, paragraphs 0004, 0013, 0015, 0016, and 0018; see also Figure 3, steps 102 and 104);
- b) selecting the interface personality based on negotiations with the module (Specification, paragraphs 0004 and 0017; see also Figure 3, step 114); and
- c) applying the interface personality to the one of the plurality of module interfaces, such that the applied interface personality provides an appropriate interconnection between the control system and the one of the plurality of module interfaces via a plurality of pins (such as power pins 34, control pins 36, and or datapath pins 38, Figure 2) (Specification, paragraphs 0004, 0013, 0015, 0017, 0018, and 0020; see also Figure 3, step 116).

Certain dependent claims are argued separately. Claim 2 depends from claim 1 and recites the additional limitation “wherein different interface personalities can be implemented simultaneously among the plurality of module interfaces.” Claim 8 depends from claim 7 and recites a similar limitation. Support for this limitation may be found in at least paragraphs 0004, 0015, and 0018 of the Specification.

Claim 5 depends from claim 1 and recites the additional limitations “wherein the adaptive interconnect logic is further adapted to:

- a) receive a stimulus indicative of a change in personality for the module;
 - b) renegotiate with the module over the control path via the one of the plurality of module interfaces to identify a new interface personality for the module;
 - c) select the new interface personality based on the renegotiations with the module;
- and

d) apply the new interface personality to the one of the plurality of module interfaces.”

Claim 11 depends from claim 7 and recites similar limitations in method format. Support for these limitations may be found in at least paragraph 0017 of the Specification, as well as Figure 3, step 120 and then steps 102, 114, and 116.

Claim 13 depends from claim 1 and recites the additional limitation “wherein the plurality of pins include power pins, control pins, and datapath pins.” Claim 17 depends from claim 7 and recites a similar limitation. Support for this limitation may be found in at least paragraphs 0013, 0015, and 0020 of the Specification, as well as Figure 2.

Claim 14 depends from claim 1 and recites the additional limitation “wherein the adaptive interconnect logic negotiates with the module using the control pins.” Claim 18 depends from claim 7 and recites a similar limitation. Support for this limitation may be found in at least paragraphs 0013, 0015, and 0020 of the Specification, as well as Figure 2.

Claim 15 depends from claim 1 and recites the additional limitation “wherein the interface personality further defines signal levels for communications with the module.” Claim 19 depends from claim 7 and recites a similar limitation. Support for this limitation may be found in at least paragraphs 0004, 0015, and 0018 of the Specification.

Claim 16 depends from claim 1 and recites the additional limitation “wherein the interface personality further defines an acceptable protocol for communications with the module.” Claim 20 depends from claim 7 and recites a similar limitation. Support for this limitation may be found in at least paragraphs 0004, 0015, and 0018 of the Specification.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 7-12 and 17-20 were properly rejected under 35 U.S.C. § 101 for failing to fall within one of the four statutory categories of invention.

B. Whether claims 1-12, 16 and 20 were properly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,043,569 to Chou et al (hereinafter “Chou”) in view of U.S. Patent No. 7,000,052 to Moon et al (hereinafter “Moon”).

C. Whether claims 13, 14, 17 and 18 were properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Moon and further in view of U.S. Patent No. 5,689,714 to Moyer et al (hereinafter “Moyer”).

D. Whether claims 15 and 19 were properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Moon and further in view of U.S. Patent No. 6,392,891 to Tzlil et al (hereinafter “Tzlil”).

(7) ARGUMENT

A. Introduction

As an initial point, claim 7 (as well as claims 8-12 and 17-20, which depend from claim 7) is tied to a particular apparatus, and thus is directed to proper statutory subject matter under 35 U.S.C. § 101. Independent claim 7 is directed to a method for providing an interface between multiple modules and a control system. The method of claim 7 is tied to another statutory category such as a particular apparatus, and is thus proper under 35 U.S.C. § 101. In particular, claim 7 recites negotiating with a module over a control path via one of a plurality of module interfaces to identify an interface personality for the module. Thus, claim 7 is tied to a control path over which negotiations with a module take place. Moreover, claim 7 recites applying an interface personality to one of a plurality of module interfaces, such that the applied interface personality provides an appropriate interconnection between the control system and the one of the plurality of module interfaces via a plurality of pins. The interconnection between a control system and a module interface is a particular apparatus, as evidenced by the fact that the interconnection is provided via a plurality of pins, which are tangible.

In addition, the Patent Office has not shown where all the elements of the pending claims are shown in the prior art with sufficient particularity to sustain an obviousness rejection. In particular, the Patent Office has not shown where the combination of Chou and Moon discloses or suggests adaptive interconnect logic adapted to: “i) negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module; ii) select the interface personality based on negotiations with the module; and iii) apply the interface personality to the one of the plurality of module interfaces,” as recited in claim 1. The combination of Chou and Moon does not teach or suggest the claimed interface personality. Moreover, the combination of Chou and Moon does not teach or suggest adaptive interconnect logic adapted to “**negotiate with a module** over a control path via one of the plurality of module interfaces **to identify an interface personality for the module**,” as recited by the claimed invention. Further, the combination of Chou and Moon does not teach or suggest adaptive

interconnect logic adapted to “select an interface personality based on negotiations with the module,” as recited by the claimed invention.

Moreover, the combination of Chou and Moon does not teach or suggest that the interface personality that is applied to the one of the plurality of module interfaces provides an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins, as recited in claims 1 and 7.

Further, the Patent Office has not shown where the prior art discloses all the features recited in the dependent claims. For example, the combination of Chou and Moon does not teach or suggest “wherein different interface personalities can be implemented simultaneously among the plurality of module interfaces,” as recited in dependent claims 2 and 8. Likewise, the combination of Chou and Moon does not teach or suggest where the adaptive interconnect logic is further adapted to “receive a stimulus indicative of a change in personality for the module,” as recited in claims 5 and 11. Nor does the combination of Chou and Moon teach or suggest renegotiating with the module to identify and select a **new** interface personality to be applied for the module, as recited in claims 5 and 11.

In a similar fashion, Chou and Moon, alone or in combination with Moyer, fails to teach or suggest that the plurality of pins that provide the appropriate interconnection between the control system interface and the one of the plurality of module interfaces include power pins, control pins, and datapath pins, as recited in claims 13 and 17. Moreover, Moyer, alone or in combination with Chou and Moon, does not teach or suggest that the adaptive interconnect logic negotiates with the module **using the control pins**, as recited in claims 14 and 18. In addition, the combination of Chou and Moon, alone or in combination with Tzlil, does not teach or suggest the limitation that the interface personality further defines signal levels for communications with the module, as recited in claims 15 and 19. Finally, the combination of Chou and Moon, alone or in combination with any of the other cited references, does not teach or suggest the additional limitation of dependent claims 16 and 20 that the interface personality further defines an acceptable protocol for communications with the module.

As such, Appellant requests that the Board reverse the Examiner and instruct the Examiner to allow the claims for these reasons along with the reasons noted below.

B. Legal Standards

1. For Establishing Anticipation

Section 102 of the Patent Act provides the statutory basis for an anticipation rejection and states *inter alia*:

A person shall be entitled to a patent unless

(e) the invention was described in - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language. . . .

The Federal Circuit's test for anticipation has been set forth numerous times. "It is axiomatic that for prior art to anticipate under 102 it has to meet every element of the claimed invention." Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1379 (Fed. Cir. 1986). This standard has been reinforced. "To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter." PPG Indus. Inc. v. Guardian Indus. Corp., 75 F.3d 1558, 1577 (Fed. Cir. 1996) (citations omitted). Further, "a finding of anticipation requires that the publication describe all of the elements of the claims, arranged as in the patented device." C.R. Bard Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1349 (Fed. Cir. 1998) (emphasis added and citations omitted).

2. For Establishing Obviousness

Section 103(a) of the Patent Act provides the statutory basis for an obviousness rejection and reads as follows:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a person having ordinary skill in the art to which said subject matter

pertains. Patentability shall not be negated by the manner in which the invention was made.

Courts have interpreted 35 U.S.C. § 103(a) as a question of law based on underlying facts. As the Federal Circuit stated:

Obviousness is ultimately a determination of law based on underlying determinations of fact. These underlying factual determinations include: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) the extent of any proffered objective indicia of nonobviousness.

Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH, 45 U.S.P.Q.2d (BNA) 1977, 1981 (Fed. Cir. 1998) (internal citations omitted).

Once the scope of the prior art is ascertained, the content of the prior art must be properly combined. “Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demand known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See In re Kahn, 441 F. 3d 977, 988 (CA Fed. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).” KSR Int’l Co. v. Teleflex, Inc., 550 U.S. 398, 418, 82 U.S.P.Q.2d (BNA) 1385 (2007).

Whether an element is implicitly or explicitly taught by a reference or combination of references is open to interpretation. While the Patent Office is entitled to give claim terms their broadest reasonable interpretation, this interpretation is limited by a number of factors. First, the interpretation must be consistent with the specification. In re Hyatt, 211 F.3d 1367, 1372 (Fed. Cir. 2000); M.P.E.P. § 2111. Second, the broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. In re Cortright, 165 F.3d 1353, 1359, (Fed. Cir. 1999); M.P.E.P. § 2111. Finally, the interpretation must be reasonable. In re Am. Acad. of Sci. Tech. Ctr., 367 F.3d 1359, 1369 (Fed. Cir. 2004); M.P.E.P. § 2111.01. This means that the words of the claim must be given their plain meaning unless a clear definition is provided in the specification. In re Zletz, 893 F.2d 319, 321 (Fed. Cir. 1989).

If a claim element is missing after the combination is made, then the combination does not render obvious the claimed invention, and the claims are allowable. As stated by the Federal

Circuit, “[if] the PTO fails to meet this burden, then the Appellants are entitled to the patent.” In re Glaug, 283 F.3d 1335, 1338 (Fed. Cir. 2002).

C. Claims 7-12 and 17-20 Are Directed to Statutory Subject Matter

Claims 7-12 and 17-20 were rejected under 35 U.S.C. § 101 as allegedly not falling within one of the four statutory categories of invention. Appellant respectfully traverses. Independent claim 7 is directed to a method for providing an interface between multiple modules and a control system. The method of claim 7 is tied to another statutory category such as a particular apparatus, and is thus proper under 35 U.S.C. § 101. In particular, claim 7 recites negotiating with a module over a control path via one of a plurality of module interfaces to identify an interface personality for the module. Thus, claim 7 is tied to a control path over which negotiations with a module take place. Moreover, claim 7 recites applying an interface personality to one of a plurality of module interfaces, such that the applied interface personality provides an appropriate interconnection between the control system and the one of the plurality of module interfaces via a plurality of pins. Thus, claim 7 provides an appropriate interconnection between the control system and the one of the plurality of module interfaces via a plurality of pins. The interconnection between a control system and a module interface is a particular apparatus, as evidenced by the fact that the interconnection is provided via a plurality of pins, which are tangible. Accordingly, claim 7 (as well as claims 8-12 and 17-20, which depend from claim 7) is tied to a particular apparatus, and thus is directed to proper statutory subject matter under 35 U.S.C. § 101. The rejection under 35 U.S.C. § 101 should therefore be withdrawn.

D. Claims 1-12, 16 and 20 Are Patentable Over Chou in View of Moon

Claims 1-12, 16, and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Moon. Appellant respectfully traverses the rejection. To establish *prima facie* obviousness, the Patent Office must show where each and every element of the claim is taught or suggested in the combination of references. M.P.E.P. § 2143.03. If the Patent Office cannot establish obviousness, the claims are allowable.

Before addressing the rejection, Appellant provides a brief overview of the embodiments disclosed in the present application. The disclosed embodiments relate to adaptive interconnect

logic, which is adapted to communicate with various types of modules that are plugged into the interconnect logic, and to automatically configure itself to interact with the various modules. For each module interface, the interconnect logic can take on different interface personalities for facilitating communications via the data path. Preferably, the interconnect logic will automatically configure itself to provide the appropriate layer or physical and media access control layers, to effectively communicate with computer premise equipment via the modules. The interface personality will define pin functionality, signal levels, acceptable protocols, and the like. In general, the interconnect logic provides a translator between a control and datapath system associated with the access equipment and the various modules, which need to be plugged into the access equipment.

Claim 1 recites an adaptive interconnect for providing an interface between multiple modules and a control system comprising, among other things, adaptive interconnect logic associated with a control system interface and a plurality of module interfaces, the adaptive interconnect logic adapted to:

- i) negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module;
- ii) select the interface personality based on negotiations with the module; and
- iii) apply the interface personality to the one of the plurality of module interfaces, , such that the applied interface personality provides an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins.

1. The Combination of Chou and Moon Does Not Teach or Suggest the Claimed Interface Personality

The combination of Chou and Moon does not teach or suggest adaptive interconnect logic adapted to: “i) negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module; ii) select the interface personality based on negotiations with the module; and iii) apply the interface personality to the one of the plurality of module interfaces,” as recited in claim 1. In particular, neither Chou nor Moon teaches or suggests the claimed interface personality.

The Patent Office admits that Chou does not teach or suggest selecting the interface personality, but asserts that Moon discloses this limitation in column 1, lines 50-55 (Final Office Action mailed September 28, 2009, pp. 8-9). Appellant respectfully disagrees. Moon simply discloses a selected configuration parameter associated with an input/output card. The configuration parameter of Moon is not equivalent to the claimed interface personality. The claimed interface personality will define pin functionality, signal levels, acceptable protocols, and the like (Specification, paragraph 0004). The claimed interface personality will provide the appropriate interconnection between the control system interface and the module via a plurality of pins, which are divided into power pins, control pins, and datapath pins (Specification, paragraph 0015). The configuration parameter of Moon does not provide the functionality of the claimed interface personality.

Instead, Moon merely discloses a configuration parameter which is used to identify an aspect of the input/output card to the end user (Moon, col. 1, lines 50-55). The configuration parameter of Moon simply does not establish an interconnection between the claimed control system and the claimed module interface. The configuration parameter of Moon is used to identify something about an input/output card to an end user, which is an entirely different purpose than that of the claimed interface personality, which is to establish an interconnection between the claimed control system and the claimed module interface. The claimed interface personality has nothing to do with providing any sort of identification of an input/output card to an end user, which is the purpose of the configuration parameter of Moon. Thus, since the configuration parameter of Moon does not provide the functionality of the claimed interface personality, the configuration parameter of Moon cannot be the claimed interface personality.

In addition, according to claim 1, the claimed interface personality is identified based on negotiations between the adaptive interconnect logic and a module over a control path via one of the plurality of module interfaces. The configuration parameter of Moon is not identified based on negotiations between the adaptive interconnect logic and a module over a control path via one of the plurality of module interfaces, as recited in claim 1. The identification that reflects the configuration parameter in Moon is provided by a connector card coupled to the input/output card (Moon, col. 1, lines 65-67; and col. 2, lines 61-67). The configuration parameter of Moon is therefore not identified based on negotiations between the adaptive interconnect logic and a

module over a control path via one of the plurality of module interfaces. Since the configuration parameter in Moon is not identified this way, it cannot be the claimed interface personality.

Moreover, according to claim 1, the claimed interface personality is applied to the one of the plurality of module interfaces. The configuration parameter of Moon is not applied to the one of the plurality of module interfaces. The configuration parameter is merely an aspect of the input/output card that is reflected by an identification provided to the end user. The configuration parameter of Moon is not applied to anything, much less to one of the plurality of module interfaces. Thus, the configuration parameter of Moon is not the claimed interface personality for this additional reason.

Thus, Moon fails to disclose the claimed interface personality. Accordingly, since Moon does not teach or suggest the claimed interface personality, and the Patent Office has admitted that Chou does not teach or suggest the claimed interface personality, the combination of Chou and Moon does not teach or suggest each and every element of independent claims 1 and 7. Accordingly, claims 1 and 7 are patentable over Moon and Chou.

2. The Combination of Chou and Moon Does Not Teach or Suggest Using Adaptive Interconnect Logic to Negotiate With A Module Over a Control Path Via One of the Plurality of Module Interfaces to Identify the Claimed Interface Personality For the Module

Moreover, the combination of Chou and Moon does not teach certain other elements as alleged by the Patent Office. The combination of Chou and Moon does not teach or suggest adaptive interconnect logic adapted to “negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module,” as recited in the claimed invention. For example, the Patent Office alleges that Figures 2, 3, and 3A, as well as column 3, lines 25-47, column 4, lines 25-35, column 5, lines 15-48, and column 6, lines 64-67 of Chou teach the claimed adaptive interconnect logic adapted to i) negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module (Final Office Action mailed September 28, 2009, p. 5). Chou discloses an interconnect device that includes a storage device for storing configuration data associated with the interconnect device (Chou, Abstract). The communication ports of a switch will not function until configuration data such as port links, virtual lane parameters, etc. are

loaded (Chou, col. 1, lines 32-36). An arbiter arbitrates between competing requests for switch resources as data packets are received at the communication ports of the switch (Chou, col. 1, lines 37-41). However, the arbitrating of the competing requests for the switch resources is not the basis for identifying an interface personality. In the claimed invention, the adaptive interconnect logic is adapted to negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module. The competing requests for switch resources in Chou are not equivalent to the claimed negotiations with a module to identify an interface personality for the module. First, Chou does not teach or suggest any negotiations with a module. Instead, Chou merely arbitrates between competing requests for switch resources. Second, the arbitration of the competing resources in Chou are not used to identify an interface personality for the module that has been the subject of the negotiations. Chou does disclose that configuration data is stored in a storage device and is requested by a configuration interface (Chou, col. 6, lines 64-66). However, the configuration data is not requested as the result of any **negotiations with the module**. Thus, Chou does not teach or suggest adaptive interconnect logic adapted to “**negotiate with a module** over a control path via one of the plurality of module interfaces **to identify an interface personality for the module**,” as recited by the claimed invention. As such, claims 1 and 7 are patentable for this additional reason.

3. The Combination of Chou and Moon Does Not Teach or Suggest Using Adaptive Interconnect Logic to Select the Claimed Interface Personality Based on Negotiations With the Module

Likewise, since Chou does not teach or suggest adaptive interconnect logic adapted to negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module, Chou also does not teach or suggest adaptive interconnect logic adapted to “select an interface personality based on negotiations with the module,” as recited by the claimed invention. As discussed above, Chou does not request the configuration data based on any negotiations with the module. Thus, the configuration data in Chou is not selected based on any negotiations with the module. In addition, the configuration data in Chou is also not the claimed interface personality. The claimed interface personality will define pin functionality, signal levels, acceptable protocols, and the like (Specification,

paragraph 0004). The claimed interface personality will provide the appropriate interconnection between the control system interface and the module via a plurality of pins, which are divided into power pins, control pins, and datapath pins (Specification, paragraph 0015). The configuration data of Chou does not provide the functionality of the claimed interface personality. Thus, Chou fails to disclose the claimed interface personality.

Likewise, the configuration parameter in Moon is not the claimed interface personality, for the reasons discussed above. In addition, the configuration parameter in Moon is not selected based on negotiations with the module, as recited by the claimed invention. Therefore, neither Chou nor Moon, alone or in combination, teaches or suggests adaptive interconnect logic adapted to “select an interface personality based on negotiations with the module,” as recited by the claimed invention. Claims 1 and 7 are patentable for this additional reason.

4. The Combination of Chou and Moon Does Not Teach or Suggest That the Claimed Interface Personality That is Applied to the One of the Plurality of Module Interfaces Provides an Appropriate Interconnection Between the Control System Interface and the One of the Plurality of Module Interfaces Via a Plurality of Pins

In addition, the combination of Chou and Moon does not teach or suggest that the interface personality that is applied to the one of the plurality of module interfaces provides an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins, as recited in claims 1 and 7. Neither Chou nor Moon mentions that an appropriate interconnection is provided by the interface personality between the control system interface and the one of the plurality of module interfaces via a plurality of pins.

The Patent Office alleges that Figures 2, 5, and 6, and column 8, lines 20-50 of Chou teach that the applied interface personality provides an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins (Final Office Action mailed September 28, 2009, p. 6). Appellant respectfully disagrees. In Chou, the values of one or more input pins of the interconnect device are used to identify the storage device which stores the configuration data (Chou, col. 8, lines 30-32). Chou also discloses a table 600 that store values of the input pins and is used to determine how to access a storage device storing configuration data (Chou, col. 8, lines 32-47). Thus, Chou teaches using the value of the input pins to get the configuration data. The configuration data in Chou is not

obtained until the input pins are used to identify the storage device which has the configuration data. Therefore, the configuration data in Chou, which is equated by the Patent Office to the claimed interface personality, is not applied to provide an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins.

Instead, the pins in Chou are used to get the configuration data, not to provide the interconnection between the control system interface and the one of the plurality of module interfaces. As admitted by the Patent Office, the input pins in Chou “are used to identify [a] storage device.” (Final Office Action mailed September 28, 2009, p. 3). The input pins in Chou are not used to provide an appropriate interconnection between the control system interface and the one of the plurality of module interfaces, as recited in claims 1 and 7. The claimed interface personality will define pin functionality, signal levels, acceptable protocols, and the like (Specification, paragraph 0004). The claimed interface personality will provide the appropriate interconnection between the control system interface and the module via a plurality of pins, which are divided into power pins, control pins, and datapath pins (Specification, paragraph 0015). Neither the input pins nor the table in Chou provide the functionality of the claimed interface personality.

Accordingly, Chou does not teach or suggest adaptive interconnect logic adapted to “apply the interface personality to the one of the plurality of module interfaces, **such that the applied interface personality provides an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins,**” as recited in claim 1.

The configuration data in Chou is not applied to provide an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins. Moon does not cure the deficiencies of Chou in this regard. The configuration parameter in Moon merely discloses a configuration parameter which is used to identify an aspect of the input/output card to the end user (Moon, col. 1, lines 50-55). The configuration parameter of Moon simply does not establish an interconnection of any sort between the claimed control system and the claimed module interface, much less provide an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins. Thus, the combination of Chou and Moon does not teach each

and every element of independent claims 1 and 7 as amended. Claims 1 and 7 are therefore patentable.

Claims 2-6 and 8-12 depend from claims 1 and 7, respectively, and contain all of the limitations of the independent claim from which they depend. Thus, claims 2-6 and 8-12 are patentable based on their dependency from claims 1 and 7.

5. Claims 2 and 8 Are Separately Patentable

In addition, certain dependent claims require special mention as they contain additional limitations not taught by the combination of Chou and Moon. Claims 2 and 8 recite the additional limitation of “wherein different interface personalities can be implemented simultaneously among the plurality of module interfaces.” The Patent Office alleges this limitation is taught by Chou in column 4, lines 20-25 and lines 42-46, and column 6, lines 20-28, which the Patent Office asserts discloses “providing the configuration data to units of the switch” (Final Office Action mailed September 28, 2009, p. 6). Appellant respectfully disagrees. Chou discloses that a configuration module provides configuration data to various components of the switch (Chou, col. 4, lines 20-24 and lines 42-46; and col. 6, lines 20-28). However, the cited portions of Chou do not teach or suggest that **different** interface personalities are implemented **simultaneously** among the plurality of modules, as recited in claims 2 and 8. There is no mention in the cited portions of Chou that the configuration data provided to various components of the switch is different, and there is no mention that the configuration data is implemented simultaneously. Thus, the cited portions of Chou do not teach this additional limitation of claims 2 and 8. Accordingly, claims 2 and 8 are also patentable for this additional reason.

6. Claims 5 and 11 Are Separately Patentable

Claim 5 recites the additional limitation that the adaptive interconnect logic is further adapted to:

- a) receive a stimulus indicative of a change in personality for the module;
- b) renegotiate with the module over the control path via one of the plurality of module interfaces to identify a new interface personality for the module;

- c) select the new interface personality based on the renegotiations with the module;
and
- d) apply the new interface personality to the one of the plurality of module interfaces.

Claim 11 contains similar limitations. Thus, claims 5 and 11 recite that the claimed adaptive interconnect logic is further adapted to renegotiate, select, and apply a new interface personality for the module when it receives a stimulus indicative of a change in personality for the module.

The Patent Office asserts that Chou teaches the limitations of claims 5 and 11 (Final Office Action mailed September 28, 2009, pp. 6-8). Appellant respectfully disagrees. Chou does not teach where the adaptive interconnect logic is further adapted to “receive a stimulus indicative of a change in personality for the module,” as recited in claims 5 and 11. Chou does disclose an initialization module that takes control when a reset is asserted (Chou, col. 5, lines 49-50). The initialization module queries the processor subsystem interface for configuration data until receiving an indicator associated with the end of the configuration data (Chou, col. 5, lines 57-60). Thus, the indicator in Chou is an indicator of the end of the configuration data, *i.e.*, that all of the configuration data has been received, and is not indicative of a **change in personality for the module**, as recited in claims 5 and 11. At best, Chou discusses a change in status of the communication ports or the switch (Chou, col. 5, lines 57-62). There is no teaching or suggestion of a change in the **interface personality** for the module in the cited portion of Chou. Accordingly, Chou does not teach or suggest where the adaptive interconnect logic is further adapted to “receive a stimulus indicative of a change in personality for the module,” as recited in claims 5 and 11. Claims 5 and 11 are therefore patentable for this additional reason.

Moon does not cure the deficiencies of Chou with respect to claims 5 and 11. Moon simply discloses that a configuration parameter may be selected for an input/output card (Moon, col. 1, lines 50-55). Moon does not disclose or suggest adaptive interconnect logic that is further adapted to “receive a stimulus indicative of a change in personality for the module,” as recited in claims 5 and 11. In addition, Moon does not teach or suggest renegotiating with the module to identify and select a **new** interface personality to be applied for the module, as recited in claims 5 and 11. As such, claims 5 and 11 are patentable for this additional reason.

7. Claims 16 and 20 Are Separately Patentable

In addition, claims 16 and 20 recite the additional limitation that the interface personality further defines an acceptable protocol for communications with the module. The Patent Office states that column 2, lines 42-63 of Moon teaches this limitation (Final Office Action mailed September 28, 2009, p. 9). Appellant respectfully disagrees. The cited portion of Moon merely mentions that the communication system of Moon may be implemented in conjunction with a PC104 or a PC104+ protocol, or in conjunction with any other suitable protocol according to particular needs. Moon does not disclose that the acceptable protocol for communications with the module is defined by the interface personality of the claimed invention, as recited in claims 16 and 20. Claims 16 and 20 are thus patentable for this additional reason.

E. Claims 13, 14, 17, and 18 Are Patentable Over Chou in View of Moon and Further in View of Moyer

Claims 13, 14, 17, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Moon and further in view of Moyer. The standards for obviousness are set forth above.

Claims 13 and 14 depend from claim 1 and contain all of the limitations of the claim 1. Claims 17 and 18 depend from claim 7 and contain all of the limitations of claim 7. As set forth above, the combination of Chou and Moon does not teach or suggest each and every limitation of claims 1 and 7. Moyer does not cure the deficiencies of Chou and Moon in this regard. Thus, claims 13, 14, 17, and 18 are patentable based on their dependency from claims 1 and 7.

Moreover, claims 13 and 17 recite that the plurality of pins that provide the appropriate interconnection between the control system interface and the one of the plurality of module interfaces include power pins, control pins, and datapath pins. Claims 14 and 18 recite the further limitation that the adaptive interconnect logic negotiates with the module using the control pins. The combination of Chou, Moon, and Moyer does not teach or suggest these limitations.

The Patent Office alleges that Figures 5 and 6 and column 8, lines 30-50 of Chou teach the claimed datapath pins (Final Office Action mailed September 28, 2009, p. 10). Appellant respectfully disagrees. Chou merely discloses input pins. First, there is no indication that the input pins in Chou are datapath pins. Second, as discussed above, the input pins in Chou do not

provide an interconnection between the control system interface and the one of the plurality of module interfaces. Thus, Chou, alone or in combination with Moon and Moyer, does not teach or suggest that the plurality of pins that provide the appropriate interconnection between the control system interface and the one of the plurality of module interfaces include power pins, control pins, and datapath pins.

The Patent Office alleges that column 5, lines 32-37 and column 7, lines 45-56 of Moon teach the claimed power pins (Final Office Action mailed September 28, 2009, p. 10). Appellant respectfully disagrees. Column 5, lines 32-37 of Moon discloses identification pins and output pins, but not power pins. Column 7, lines 45-56 of Moon discusses a power up of a PC104+ stack, which may involve a master that controls a reset pin. The reset pin of Moon is not equivalent to the claimed power pins. Moreover, the pins disclosed in Moon are not part of an interconnection between the control system interface and the one of the plurality of module interfaces as provided by the applied interface personality, as recited in the claimed invention. Thus, Moon, alone or in combination with Chou and Moyer, does not teach or suggest that the plurality of pins that provide the appropriate interconnection between the control system interface and the one of the plurality of module interfaces include power pins, control pins, and datapath pins.

The Patent Office alleges that Figures 1 and 2, column 2, lines 40-55, and column 4, lines 1-25 of Moyer teach the claimed control pins (Final Office Action mailed September 28, 2009, p. 11). While Moyer does disclose control pins, Moyer does not teach or suggest that the control pins are part of an interconnection between the control system interface and the one of the plurality of module interfaces as provided by the applied interface personality, as recited in the claimed invention. In addition, Moyer fails to disclose that the control pins are used by the adaptive interconnect logic in its negotiations with the module. Moyer simply mentions that control information is communicated to the control pins by a bus controller (Moyer, col. 2, lines 38-41). There is no mention of the control pins in Moyer being used to negotiate with a module. Thus, Moyer, alone or in combination with Chou and Moon, fails to teach or suggest that the plurality of pins that provide the appropriate interconnection between the control system interface and the one of the plurality of module interfaces include power pins, control pins, and datapath pins, as recited in claims 13 and 17. Moreover, Moyer, alone or in combination with Chou and Moon, does not teach or suggest that the adaptive interconnect logic negotiates with

the module **using the control pins**, as recited in claims 14 and 18. Claims 13, 14, 17, and 18 are therefore patentable over the cited references.

F. Claims 15 and 19 Are Patentable Over Chou in View of Moon and Further in View of Tzlil

Claims 15 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chou in view of Moon and further in view of Tzlil. The standards for obviousness are set forth above.

Claim 15 depends from claim 1 and contains all of the limitations of the claim 1. Claim 19 depends from claim 7 and contains all of the limitations of claim 7. As set forth above, the combination of Chou and Moon does not teach or suggest each and every limitation of claims 1 and 7. Tzlil does not cure the deficiencies of Chou and Moon in this regard. Thus, claims 15 and 19 are patentable based on their dependency from claims 1 and 7.


In addition, claims 15 and 19 recite the additional limitation that the interface personality further defines signal levels for communications with the module. The Patent Office states that column 1, lines 23-35 of Tzlil teaches this limitation (Final Office Action mailed September 28, 2009, p. 12). Appellant respectfully disagrees. The cited portion of Tzlil merely mentions that various standards involving the properties of circuit card modules include specifications as to signal functions and signal voltage levels. Tzlil does not mention that the signal levels are defined by an interface personality of the type in the claimed invention, as recited in claims 15 and 19. Claims 15 and 19 are thus patentable for this additional reason.

G. Conclusion

As set forth above, the cited references do not disclose or suggest the features recited in Appellant's claims. As such, Appellant requests that the Board reverse the Examiner and instruct the Examiner to allow the claims.

Respectfully submitted,

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(8) CLAIMS APPENDIX

1. An adaptive interconnect for providing an interface between multiple modules and a control system comprising:
 - a) a control system interface;
 - b) a plurality of module interfaces; and
 - c) adaptive interconnect logic associated with the control system interface and the plurality of module interfaces and adapted to:
 - i) negotiate with a module over a control path via one of the plurality of module interfaces to identify an interface personality for the module;
 - ii) select the interface personality based on negotiations with the module; and
 - iii) apply the interface personality to the one of the plurality of module interfaces, such that the applied interface personality provides an appropriate interconnection between the control system interface and the one of the plurality of module interfaces via a plurality of pins.
2. The adaptive interconnect of claim 1 wherein different interface personalities can be implemented simultaneously among the plurality of module interfaces.
3. The adaptive interconnect of claim 1 wherein the adaptive interconnect logic is further adapted to renegotiate with the module over the control path if initial negotiations fail.
4. The adaptive interconnect of claim 3 wherein if the renegotiation fails, the adaptive interconnect logic is further adapted to send a notification of failure.
5. The adaptive interconnect of claim 1 wherein the adaptive interconnect logic is further adapted to:
 - a) receive a stimulus indicative of a change in personality for the module;
 - b) renegotiate with the module over the control path via the one of the plurality of module interfaces to identify a new interface personality for the module;

c) select the new interface personality based on the renegotiations with the module;
and

d) apply the new interface personality to the one of the plurality of module interfaces.

6. The adaptive interconnect of claim 1 wherein negotiating, selecting and applying the interface personality are dynamic and occur automatically upon plugging the module into the one of the plurality of module interfaces.

7. A method for providing an interface between multiple modules and a control system comprising:

a) negotiating with a module over a control path via one of a plurality of module interfaces to identify an interface personality for the module;
b) selecting the interface personality based on negotiations with the module; and
c) applying the interface personality to the one of the plurality of module interfaces, such that the applied interface personality provides an appropriate interconnection between the control system and the one of the plurality of module interfaces via a plurality of pins.

8. The method of claim 7 wherein different interface personalities can be implemented simultaneously among the plurality of module interfaces.

9. The method of claim 7 further comprising renegotiating with the module over the control path if initial negotiations fail.

10. The method of claim 9 wherein if the renegotiation fails, further comprising sending a notification of failure.

11. The method of claim 7 further comprising:

a) receiving a stimulus indicative of a change in personality for the module;
b) renegotiating with the module over the control path via the one of the plurality of module interfaces to identify a new interface personality for the module;

- c) selecting the new interface personality based on the renegotiations with the module; and
- d) applying the new interface personality to the one of the plurality of module interfaces.

12. The method of claim 7 wherein negotiating, selecting and applying the interface personality are dynamic and occur automatically upon plugging the module into the one of the plurality of module interfaces.

13. The adaptive interconnect of claim 1 wherein the plurality of pins include power pins, control pins, and datapath pins.

14. The adaptive interconnect of claim 13 wherein the adaptive interconnect logic negotiates with the module using the control pins.

15. The adaptive interconnect of claim 1 wherein the interface personality further defines signal levels for communications with the module.

16. The adaptive interconnect of claim 1 wherein the interface personality further defines an acceptable protocol for communications with the module.

17. The method of claim 7 wherein the plurality of pins include power pins, control pins, and datapath pins.

18. The method of claim 17 wherein the negotiating step with the module is performed using the control pins.

19. The method of claim 7 wherein the interface personality further defines signal levels for communications with the module.

20. The method of claim 7 wherein the interface personality further defines an acceptable protocol for communications with the module.

(9) EVIDENCE APPENDIX

Appellants rely on no evidence, thus this appendix is not applicable.

(10) RELATED PROCEEDINGS APPENDIX

As there are no related proceedings, this appendix is not applicable.